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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

CHANG, SUNRAY

ART UNIT	PAPER NUMBER
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2121

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/882,581	BRONSTEIN ET AL.	
	Examiner	Art Unit	
	Sunray Chang	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This office action is in responsive to the paper filed on December 14th, 2006.
2. Claims 1 – 20 are presented for examination.

Claims 1 – 20 are rejected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. **Claims 1 – 20 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Cynthia Hood et al. (Intelligent Detection For Fault Management of Communication Networks and referred to as **Hood** hereinafter), and in view of Kentaro Toyama (U.S. Patent No. 6,502,082 and referred to as **Toyama** hereinafter).

(**Hood** as set forth above generally discloses the basic inventions.)

Regarding independent claim 1,

Hood teaches, A health assessor for assessing health of a target element within a multi-element system, comprising:

a plurality of sensors, each being operatively coupled to the target element to produce a measure of the target element; (see pg 16, Figure 3.1)

a plurality of measure collectors, each collecting a measure from one of the sensors, wherein each of the collectors also stores the measure as historical measure; (see pg 16, lines 1-3. "the architecture consists of a centralized network manager along with many agents. the agents reside in the various network nodes and collect data.")

a plurality of evaluators, each evaluating at least a subset of all the measures collected by the measure collectors in accordance with a pre-configured evaluation definition for the respective evaluator to provide an assessment; (see pg 5-6, 1.2.1 Observation Processing and Figure 1.1-1.2)

a probabilistic reasoning network coupled to the evaluators to receive the assessment from each of the evaluators and to analyze all the assessments in accordance with a pre-configured reasoning definition so as to provide an overall probabilistic health assessment of the target element. (see pg 6, 1.2.2 Combination of Information, lines 1-6 and Figure 1.3)

Hood does not teach the probabilistic reasoning network to analyze the assessments from the evaluators according to information indicating reliabilities of the respective evaluators.

Toyama teaches the probabilistic reasoning network to analyze the assessments from the evaluators according to information indicating reliabilities of the respective evaluators [Col. 8, line 52 – Col. 9, line 46], for the purpose of effectively capturing probabilistic dependencies

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between the true state of the object being tracked and evidence from the tracking modalities [Col. 2, lines 28 – 30; see further Col. 2, lines 22 – 54].

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Hood** to include "the probabilistic reasoning network to analyze the assessments from the evaluators according to information indicating reliabilities of the respective evaluators", for the purpose of effectively capturing probabilistic dependencies between the true state of the object being tracked and evidence from the tracking modalities [Col. 2, lines 28 – 30; see further Col. 2, lines 22 – 54].

Regarding Claim 2:

Hood teaches, the health assessor of claim 1, wherein the evaluation definition of an evaluator determines which of the measures collected by all of the measure collectors are to be received by the respective evaluator. (see pg 5, 1.2.1 Observation Processing, lines 3-9 to pg 6 line 1. "within each segment of data, we are interested in capturing the information pertinent to the detection problem. this is the responsibility of the feature extraction component.")

Regarding Claim 3:

Hood teaches, the health assessor of claim 1, wherein each of the evaluators further comprises: an evaluation definition store that stores the pre-configured evaluation definition of the evaluator; (see pg 17, lines 12-17) an evaluation module coupled to the evaluation definition store to provide the assessment by statistically comparing the subset of the measures and the historical measures based on the predefined evaluation definition. (see pg 5-6, 1.2.1 Observation Processing and 1.2.2 Combination of Information)

Regarding Claim 4:

Hood teaches, the health assessor of claim 3, wherein the operation of an evaluator can be changed by replacing the pre-configured evaluation definition for that evaluator with a new evaluation definition. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and see pg 61, lines 13-20 to pg 62 lines 1-2. "in our experiments we set $p(\text{Network} = \text{normal}) = 0.9$, $p(\text{nf}=\text{normal}/\text{network} = \text{normal}) = 0.8$ and $p(\text{nf}=\text{normal}/\text{network} = \text{abnormal}) = 0.2$." Examiner notes that these threshold values could be not only be set at any value, but also they could be reset/changed at any time which anticipates replacing the pre-configured reasoning definition with a new reasoning definition claimed by applicant.)

Regarding Claim 5:

Hood teaches, the health assessor of claim 1, wherein the reasoning network is a Bayesian network probabilistic reasoning network. (see pg 6, 1.2.2 Combination of Information, lines 1-6 and Figure 1.3)

Regarding Claim 6:

Hood teaches, the health assessor of claim 1, wherein the overall health assessment of the target element is the probability indicating that the target element is healthy. (see pg 39, 4.3.2 Study of Features, lines 1-2. "our goal is to extract information that will help us determine whether the behavior of the MIB variable is normal or abnormal." and see pg 61, lines 13-20 to pg 62, lines 1-2)

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Regarding Claim 7:

Hood teaches, the health assessor of claim 5, wherein the probabilistic reasoning network further comprises a reasoning definition store that stores the pre-configured reasoning definition, wherein the pre-configured reasoning definition defines how the probabilistic reasoning network should analyze all the assessments received from the evaluators to produce the overall health assessment of the target element. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and pg 45, lines 2-5 and pg 46, lines 1-8)

Regarding Claim 8:

Hood teaches, the health assessor of claim 7, wherein the operation of the probabilistic reasoning network can be changed by replacing the pre-configured reasoning definition with a new reasoning definition. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and see pg 61, lines 13-20 to pg 62 lines 1-2. "in our experiments we set $p(\text{Network} = \text{normal}) = 0.9$, $p(\text{nf}=\text{normal}/\text{network} = \text{normal}) = 0.8$ and $p(\text{nf}=\text{normal}/\text{network} = \text{abnormal}) = 0.2$." Examiner notes that these threshold values could be not only be set at any value, but also they could be reset/changed at any time which anticipates replacing the pre-configured reasoning definition with a new reasoning definition claimed by applicant.)

Regarding Claim 9:

Hood teaches, a health assessment system for assessing health of an element within a multi-element system, comprising: a health assessment engine that receives measures of the target element and provides health assessment of the target element based on the measures and historical measures of the target element, wherein the historical measures have already been

stored in the health assessment engine; (see pg 1.9, lines 6-9. "SNMP also provides a protocol for communication between the agents and the network manager. this protocol allows the manager to query the MIB for current information, change information in the MIB, and receive notification of certain events occurring at the agent.") a result formatting module that formats the health assessment into a report; (see pg 24, lines 1-7)

Hood does not teach a web interface that transmits the formatted report to a remote access system via the Internet.

Toyama teaches a web interface that transmits the formatted report to a remote access system via the Internet. [Col. 6, lines 30 – 40; further see Col. 6, lines 17 – 44]

Regarding Claim 10:

Hood teaches, the health assessment system of claim 9, wherein the health assessment engine further comprises: a plurality of sensors, each being operatively coupled to the target element to produce a measure of the target element; (see pg 16, Figure 3.1) a plurality of measure collectors, each collecting a measure from one of the sensors, wherein each of the collectors also stores the measure as historical measure; (see pg 16, lines 1-3. "the architecture consists of a centralized network manager along with many agents. the agents reside in the various network nodes and collect data.")

a plurality of evaluators, each evaluating at least a subset of all the measures collected by the measure collectors in accordance with a (1) pre-configured evaluation definition for the respective evaluator and (2) at least a subset of all historical measures of the target element that have already been stored in the collector to provide an assessment; (see pg 5-6, 1.2.1

Observation Processing and Figure 1.1-1.2)

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a probabilistic reasoning network coupled to the evaluators to receive the assessment from each of the evaluators and to analyze all the assessments in accordance with a pre-configured reasoning definition so as to provide an overall health assessment of the target element. (see pg 6, 1.2.2 Combination of Information, lines 1-6 and Figure 1.3)

Regarding Claim 11:

Hood teaches, the health assessment system of claim 10, wherein each of the evaluators further comprises an evaluation definition store that stores the pre-configured evaluation definition of the evaluator; an evaluation module coupled to the evaluation definition store to provide the assessment by statistically comparing the subset of the measures and the historical measures based on the predefined evaluation definition. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and pg 45, lines 2-5 and pg 46, lines 1-8)

Regarding Claim 12:

Hood teaches, the health assessment system of claim 11, wherein the operation of an evaluator can be changed by replacing the pre-configured evaluation definition for that evaluator with a new evaluation definition. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and see pg 61, lines 13-20 to pg 62 lines 1-2. "in our experiments we set $p(\text{Network} = \text{normal}) = 0.9$, $p(\text{nf}=\text{normal}/\text{network} = \text{normal}) = 0.8$ and $p(\text{nf}=\text{normal}/\text{network} = \text{abnormal}) = 0.2$." Examiner notes that these threshold values could be not only be set at any value, but also they could be reset/changed at any time which anticipates replacing the pre-configured reasoning definition with a new reasoning definition claimed by applicant.)

Regarding Claim 13:

Hood teaches, the health assessment system of claim 10, wherein the reasoning network is a Bayesian network probabilistic reasoning network. (see pg 6, 1.2.2 Combination of Information, lines 1-6 and Figure 1.3)

Regarding Claim 14:

Hood teaches, the health assessment system of claim 13, wherein the probabilistic reasoning network further comprises a reasoning definition store that stores the pre-configured reasoning definition, wherein the pre-configured reasoning definition defines how the probabilistic reasoning network should analyze all the assessments received from the evaluators to produce the overall health assessment of the target element. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and pg 45, lines 2-5 and pg 46, lines 1-8)

Regarding Claim 15:

Hood teaches, the health assessment system of claim 14, wherein the operation of the probabilistic reasoning network can be changed by replacing the pre-configured reasoning definition with a new reasoning definition. (see pg 33 Figure 4.3 and pg 34, lines 1-11, Figure 4.4 and see pg 61, lines 13-20 to pg 62 lines 1-2. "in our experiments we set $p(\text{Network} = \text{normal}) = 0.9$, $p(\text{nf}=\text{normal}\text{network} = \text{normal}) = 0.8$ and $p(\text{nf}=\text{normal}/\text{network} = \text{abnormal}) = 0.2$." Examiner notes that these threshold values could be not only be set at any value, but also they could be reset/changed at any time which anticipates replacing the pre-configured reasoning definition with a new reasoning definition claimed by applicant.)

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Regarding Claim 16:

Hood teaches, the health assessment system of claim 10, wherein the remote access system is the target element. (see Figure 3.1. **Hood** discloses in this figure a router to another network with a workstation with an agent connected anticipating the remote access system being the target element claimed by applicant.)

Regarding Claim 17:

Hood teaches, the health assessment system of claim 10, wherein the remote access system is a remote access terminal or an application. (see Figure 3.1. **Hood** discloses in this figure a router to another network with a workstation and agent connected together, which is the remote access terminal, claimed by applicant.)

Regarding Claim 18:

Toyama teaches the evaluation definition of a first one of the evaluators specifies that the first evaluator is to receive measures from a first group of the measure collectors, and the evaluation definition of a second of the evaluators specifies that the second evaluator is to receive measures from a second, distinct group of the measure collectors. [fusion of multiple modalities, Col. 7, line 61 – Col. 8, line 51]

Regarding Claim 19:

Toyama teaches the health assessment engine further comprises sensors to provide the measures, measure evaluators to provide assessments based on the measures from the sensors

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from the sensors and the historical measures, wherein the probabilistic reasoning network generates the health assessment based on the assessments provided by the measure evaluators and based on information indicating the trustworthiness of respective measure evaluators.

[fusion of multiple modalities, Col. 7, line 61 – Col. 8, line 51]

4. **Claim 20 is rejected** under 35 U.S.C. 103(a) as being unpatentable over **Hood** in view of **Toyama**, and further in view of Seth Taylor (U.S. P.G. Pub. No. 2002/0052882 and referred to as **Taylor** hereinafter).

Regarding dependent claim 20,

Hood in view of **Toyama** teaches a health assessment system for assessing health of an element within a multi-element system. (see pg 6, 1.2.2 Combination of Information, lines 1-6 and Figure 1.3)

Hood in view of **Toyama** does not teach an XML report.

Taylor teaches an XML report [0046], for the purpose of making data readable by data mining software package [0046].

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Hood** to include "an XML report", for the purpose of making data readable by data mining software package [0046].

Response to Amendment

Claim Rejections - 35 USC § 102 & 103

5. Applicants argue the combination of **Hood** and **Toyama** references fail to teach the probabilistic reasoning network analyzes assessments from evaluators according to information

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indicating reliabilities of respective evaluators [page 8] which is disagreed with. **Hood** teaches the probabilistic reasoning network analyzes assessments from evaluators according to definitions [page 6, 1.2.2 combination of information, lines 1 – 6 and Fig. 1.3]; **Toyama** teaches the definitions are weighted with reliability indicators to produce a reliability measurement [Col. 9, lines 20 – 23]. Further, **Toyama** teaches training a statistical model, such as a Bayesian network to effectively capture probabilistic dependences.

6. Applicants argue the motivation for combining **Hood** and **Toyama** references. **Toyama** teaches, “training a statistical model, such as a Bayesian network to effectively capture probabilistic dependences”, as indicated in Abstract, can be used in sensor feedback systems as disclosed in **Hood** reference.

7. Applicants argue the combination of **Hood** and **Toyama** references does not teach web interface, which is disagreed with. **Toyama** reference clearly indicates a WAN network environment, a computer with a modem for establishing communications over the wide area network, such as Internet.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37


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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. via telephone number (571) 272-3682 or facsimile transmission (571) 273-3682 or email sunray.chang@uspto.gov.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687.

The official facsimile transmission number for the organization where this application or proceeding is assigned is (703) 872-9306.



Anthony Knight
Supervisory Primary Examiner
Group Art Unit 2121
Technology Center 2100
U.S. Patent and Trademark Office

February 8, 2007